IN THE CLAIMS

The following listing of the claims is provided in accordance with 37 C.F.R. §1.121:

1. (currently amended) A method for identifying images of laser stripes projected onto the surface of an object in a non-contact gauge measurement system, comprising:

projecting one or more laser stripes onto a surface of the object;

obtaining an image of said projected laser stripes;

generating a matched filter for each pixel in said image;

filtering said image with said generated matched filter along curves, wherein the curves are either parallel or perpendicular to the orientation of respective flow fields; and

identifying the center of said projected laser stripes in said filtered image.

2. (previously presented) The method of Claim 1 for identifying images of laser stripes wherein the step of generating a matched filter for each pixel in said image includes the step of calculating:

$$v(i,j) = \sum_{R} (image(r) \times gaussian(r))$$

for each pixel (i,j) in said image, wherein image(r) is the image intensity value for a point on a curve R that emanates from pixel (i,j), and is always tangential to a flow field.

3. (original) The method of Claim 2 for identifying images of laser stripes wherein the step of generating a matched filter for each pixel in said image includes the step of calculating:

$$t(i,j) = \sum_{P} (v(p) \times gaussian(p))$$

for each pixel (i,j) in said image, wherein P is a curve that emanates from pixel (i,j), and is always perpendicular to the flow field.

4. (original) The method of Claim 3 for identifying images of laser stripes wherein the step of identifying the center of said projected laser stripes in said filtered image includes, for each raster line in said image, identifying pixels where t(i,j) is a local maximum with respect to said raster line.

5. (original) The method of Claim 1 for identifying images of laser stripes wherein the step of generating a matched filter for each pixel in said image calculates a two-dimensional matched filter for each pixel in said image.

6. (original) The method of Claim 1 for identifying images of laser stripes wherein the step of generating a matched filter for each pixel in said image includes calculating a first one-dimensional filter for each pixel and calculating a second one-dimensional filter for each pixel.

7. (original) The method of Claim 6 for identifying images of laser stripes wherein said first and second one-dimensional filters are each separable gaussian filters.

8. (original) The method of Claim 6 for identifying images of laser stripes wherein said first and second one-dimensional filters are each separable non-gaussian filters.

9. (previously presented) The method of claim 1, further comprising determining one or more corrupted laser stripes in said filtered image.

10. (previously presented) The method of claim 9, wherein the step of determining said corrupted laser stripes include identifying incoherent pixels or no pixels in said projected laser stripes.

11. (previously presented) The method of claim 9, further comprising synthesizing said corrupted laser stripes based on corresponding uncorrupted laser stripes in other images.

12. (previously presented) A method for identifying images of laser stripes projected onto the surface of an object in a non-contact gauge measurement system, comprising:

projecting one or more laser stripes onto a surface of the object;

obtaining an image of said projected laser stripes;

generating a matched filter for each pixel in said image by calculating:

(a) $v(i,j) = \sum_{R} (image(r) \times gaussian(r))$ and

(b) $t(i,j) = \sum_{P} (v(p) \times gaussian(p))$

for each pixel (i,j) in said image, wherein image(r) is the image intensity value for a point on a curve R that emanates from pixel (i,j) and is always tangential to a flow field, and P is a curve that emanates from pixel (i,j) and is always perpendicular to the flow field;

filtering said image with said generated matched filter; and

identifying the center of said projected laser stripes in said filtered image.

13. (previously presented) The method of Claim 12, wherein the step of identifying the center of said projected laser stripes in said filtered image includes, for each raster line in said image, identifying pixels where t(i,j) is a local maximum with respect to said raster line.

14. (previously presented) The method of Claim 12, wherein the step of generating a matched filter for each pixel in said image includes calculating a two-dimensional matched filter for each pixel in said image.

15. (previously presented) The method of Claim 12, wherein the step of generating a matched filter for each pixel in said image includes calculating a first one-dimensional filter and a second one-dimensional filter for each pixel in said image.

16. (previously presented) The method of Claim 15, wherein said first and said second one-dimensional filters are each separable gaussian or non-gaussian filters.

17. (currently amended) A method for identifying images of laser stripes projected onto the surface of an object in a non-contact gauge measurement system, comprising:

projecting one or more laser stripes onto a surface of the object;

obtaining [[an]]a two-dimensional image of said projected laser stripes;

identifying incoherent pixels or no pixels in said projected laser stripes; and

determining one or more corrupted laser stripes in said image based on the identification.

18. (previously presented) The method of claim 17, further comprising synthesizing said corrupted laser stripes based on corresponding uncorrupted laser stripes in other images.

19. (previously presented) The method of claim 18, further comprising identifying said corresponding uncorrupted laser stripes in other images based on a epi-polar geometry and a template structure.

20. (previously presented) The method of claim 19, wherein the template structure represents prior knowledge of the surface of the object.